

## **CLAIMS**

What is claimed is:

1. A method to manage addresses in a network, comprising:

connecting a gateway mobile terminal of a mobile network (MONET) to an access point (AP) of an access network (AN) that includes an Access Router (AR);

making a request to obtain a plurality of link addresses from a link address manager;

allocating individual ones of the plurality of link addresses to individual ones of network nodes of the MONET; and

performing a neighbor discovery procedure with the AR to send at least one neighbor advertisement to declare the allocated individual ones of the assigned plurality of link addresses.

2. A method as in claim 1, where each network node sends a neighbor advertisement to the AR to declare the link address allocated to the network node.

3. A method as in claim 1, where the gateway mobile terminal sends at least one neighbor advertisement to the AR to declare the link addresses allocated to a plurality of the network nodes.

4. A method as in claim 1, where the request is made to obtain a set of link layer addresses (LLAs) that are allocated to individual ones of the network nodes.

5. A method as in claim 1, where the request is made to obtain a group identification (Group\_ID), and further using the Group\_ID to formulate a set of link layer addresses (LLAs) that are allocated to individual ones of the network nodes.

6. A method as in claim 1, where the request is made to obtain a set of link layer

addresses (LLAs), and further mapping individual ones of the LLAs to individual hardwired addresses of individual ones of the network nodes.

7. A method as in claim 1, where the request is made to obtain a set of link layer addresses (LLAs), and further mapping individual ones of the LLAs to individual media access control (MAC) addresses of individual ones of the network nodes.

8. A method as in claim 4 where the set of LLAs are associated with a first AP, and further comprising, in response to changing a connection of the gateway mobile terminal from the first AP to a second AP, sending a message from the gateway mobile terminal to reassociate the set of LLAs with the second AP.

9. A method as in claim 5 where the Group\_ID is associated with a first AP, and further comprising, in response to changing a connection of the Gateway mobile terminal from the first AP to a second AP, sending a message from the gateway mobile terminal to reassociate the Group\_ID with the second AP.

10. A method as in claim 5 where the Group\_ID is associated with a first AP, and further comprising, in response to changing a connection of the gateway mobile terminal from the first AP to a second AP, sending a message from the gateway mobile terminal to obtain another Group\_ID that is associated with the second AP.

11. A method as in claim 4, where the set of LLAs are tracked as a group.

12. A method as in claim 1, where said gateway mobile terminal comprises a wireless device.

13. A method as in claim 1, where said gateway mobile terminal comprises a cellular telephone.

14. A method as in claim 1, where said gateway mobile terminal comprises a mobile router (MR).

15. A method as in claim 1, where said link address manager is associated with said AN.
16. A system to manage addresses in a network, comprising a mobile network (MONET) having a gateway mobile terminal and at least one Mobile Network Node (MNN), said MONET being connectable via the gateway mobile terminal to an access point (AP) of an access network (AN) that comprises an Access Router (AR), said system comprising data processors that operate in accordance with stored programs, further comprising: a link layer address (LLA) manager for managing LLAs, where a data processor of the gateway mobile terminal is responsive to the gateway mobile terminal connecting to the AP to request from the LLA manager information relating to a plurality of LLAs and to allocate individual ones of the plurality of LLAs to individual ones of the MNNs, further comprising at least one data processor performing a neighbor discovery procedure with the AR to send at least one neighbor advertisement to declare at least one allocated LLA.
17. A system as in claim 16, where each MNN comprises the data processor that sends a neighbor advertisement to the AR to declare a LLA allocated to that MNN.
18. A system as in claim 16, where the gateway mobile terminal comprises the data processor that sends at least one neighbor advertisement to the AR to declare the LLAs allocated to a plurality of the MNNs.
19. A system as in claim 16, where the information relating to a plurality of LLAs comprises a set of LLAs individual ones of which are allocated to an individual one of the MNNs.
20. A system as in claim 16, where the information relating to a plurality of LLAs comprises a group identification (Group\_ID), and where said gateway mobile terminal uses the Group\_ID to formulate a set of LLAs individual ones of which are allocated to an individual one of the MNNs.
21. A system as in claim 16, where the information relating to a plurality of LLAs comprises a set of LLAs individual ones of which are mapped to a hardwired address of individual ones of the MNNs.

22. A system as in claim 16, where the information relating to a plurality of LLAs comprises a set of LLAs individual ones of which are mapped to a media access control (MAC) address of individual ones of the MNNs.
23. A system as in claim 19 where the set of LLAs are associated with a first AP, and where said gateway mobile terminal data processor further operates, in response to changing a connection of the Gateway mobile terminal from the first AP to a second AP, to send a message to reassociate the set of LLAs with the second AP.
24. A system as in claim 20 where the Group\_ID is associated with a first AP, and where said gateway mobile terminal data processor further operates, in response to changing a connection of the Gateway mobile terminal from the first AP to a second AP, to send a message to reassociate the Group\_ID with the second AP.
25. A system as in claim 20 where the Group\_ID is associated with a first AP, and where said gateway mobile terminal data processor further operates, in response to changing a connection of the Gateway mobile terminal from the first AP to a second AP, to send a message to obtain another Group\_ID that is associated with the second AP.
26. A system as in claim 19, where the set of LLAs are tracked as a group.
27. A system as in claim 16, where said gateway mobile terminal comprises a wireless device.
28. A system as in claim 16, where said gateway mobile terminal comprises a cellular telephone.
29. A system as in claim 16, where said gateway mobile terminal comprises a mobile router (MR).
30. A system as in claim 16, where said LLA manager is associated with said AN.
31. A mobile station comprising a stored program and a data processor that executes the

stored program for being operable in a data communications network to function as a gateway mobile terminal for being coupled between at least one Mobile Network Node (MNN) and an access point (AP) of an access network (AN) that comprises an Access Router (AR), said data communications network comprising a link layer address (LLA) manager for managing LLAs, and where said mobile station data processor is responsive to the mobile station connecting to the AP to request information from the LLA manager that relates to a plurality of LLAs and to allocate individual ones of the plurality of LLAs to individual ones of the MNNs.

32. A mobile station as in claim 31, where said mobile station data processor is operable to perform a neighbor discovery procedure with the AR to send at least one neighbor advertisement to declare an LLA allocated to the at least one MNN.

33. A mobile station as in claim 31, where the information relating to a plurality of LLAs comprises a group identification (Group\_ID), and where said mobile station data processor is operable to use the Group\_ID to formulate a set of LLAs, individual ones of which are allocated to an individual one of the MNNs.

34. A mobile station as in claim 31, where the information relating to a plurality of LLAs comprises a set of LLAs individual ones of which are mapped to a hardwired address of individual ones of the MNNs.

35. A mobile station as in claim 31, where the information relating to a plurality of LLAs comprises a set of LLAs individual ones of which are mapped to a media access control (MAC) address of individual ones of the MNNs.

36. A mobile station as in claim 31 where the request is made to obtain a set of LLAs, where the set of LLAs are associated with a first AP, and where said mobile station data processor further operates, in response to changing a connection of the mobile station from the first AP to a second AP, to send a message to reassociate the set of LLAs with the second AP.

37. A mobile station as in claim 33 where the Group\_ID is associated with a first AP, and

where said mobile station data processor further operates, in response to changing a connection of the mobile station from the first AP to a second AP, to send a message to reassociate the Group\_ID with the second AP.

38. A mobile station as in claim 33 where the Group\_ID is associated with a first AP, and where said mobile station data processor further operates, in response to changing a connection of the mobile station from the first AP to a second AP, to send a message to obtain another Group\_ID that is associated with the second AP.

39. A mobile station as in claim 31, where a set of LLAs are tracked as a group.

40. A mobile station as in claim 31, where said mobile station comprises a wireless device having cellular capability.

41. A mobile station as in claim 31, where said mobile station comprises a cellular telephone.

42. A mobile station as in claim 31, where said mobile station data processor further operates to perform a mobile router (MR) function.